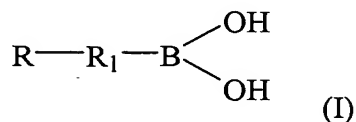


### Abstract

An analyte detector including a device having a surface, wherein the device is capable of detecting a charge adjacent to the surface. The surface includes a plurality of molecules bonded thereto, wherein the molecules have a structure (I):



where R is a ligand bonded to the surface of the device and R<sub>1</sub> is a spacer having 5 to 50 carbon atoms. The charge adjacent to the surface is created by the anionic complex of structure (I), and the number of anionic complex of structure (I) is dependent on the concentration of the analyte of interest. Methods for detecting an analyte are also disclosed, as well as systems using such analyte detectors.